

[METHOD FOR DRY ETCHING PHOTOMASK MATERIAL]

Abstract

A photomask is formed by depositing an opaque layer on a transparent substrate. A resist is formed on the opaque layer and selectively patterned to expose the portions of the opaque layer that are to be etched out. During the dry etching step, the photomask is exposed to an etchant gas mixture which exhibit a selectivity equal to or higher than 1.2:1 between the opaque layer and the resist layer. Due to the higher selectivity of the gas mixture, a thinner resist film can be used, thereby increasing resolution and accuracy of the opaque layer pattern. Also, due to reduced susceptibility to both a macro-loading effect and a pattern density effect, overetching of the resist and underetching of the opaque layer are significantly reduced, thereby achieving improved etching uniformity and consequently improved CD uniformity.